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CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD UNIVERSITY.— NEW SERIES, NO. XLV.

Presented by B. L. Robinson, June 17, 1915. Received June 17, 1915.

I. COMPOSITAE NEW AND TRANSFERRED, CHIEFLY MEXICAN.

By S. F. Blake.

SERICOCARPUS BIFOLIATUS (Walt.) Porter var. **Collinsii** (Nutt.) Blake, n. comb.— *Aster Collinsii* Nutt.! Journ. Acad. Nat. Sci. Philad. vii. 82 (1834). *Sericocarpus Collinsii* Nutt. Trans. Am. Philos. Soc. ser. 2. vii. 302 (1841). *Sericocarpus tortifolius* (Michx.) Nees var. *Collinsii* (Nutt.) Torr. & Gray, Fl. N. Am. ii. 103 (1841).— Nuttall's type in the British Museum, collected by Ware in eastern Florida, has obovate leaves, 3–5-toothed above the middle, but is indistinguishable in any other character from the ordinary form of the species. So noteworthy a variation, although not recognized by Dr. Gray in the Synoptical Flora, seems to merit varietal rank.

SERICOCARPUS RIGIDUS Lindl. var. **californicus** (E. Dur.) Blake, n. comb.— *Sericocarpus californicus* E. Durand! Journ. Acad. Nat. Sci. Philad. (Pl. Pratt.) ser. 2. iii. 90 (1855).— All the Californian specimens of *Sericocarpus rigidus* examined, including the type of *S. californicus* in the herbarium of the Muséum d'Histoire Naturelle at Paris, collected near Nevada City by Rattan, differ from the nearly glabrous northern forms of the species in their more or less densely short-hispid-pilose stems, and appear to constitute a well defined geographical variety.

GYMNOLOMIA **obscura** Blake, n. sp. Annua tenuis erecta sursum parce ramosa 1.9–3.5 dm. alta. Caulis leviter striatus hispidulus et strigosus pallide brunneus. Folia inferiora (3–7-juga) opposita superiora alterna oblongo-ovata vel oblongo-lanceolata vel lanceolata acuta vel subacuminata basi cuneata crenato-dentata (dentibus ca. 7–9-jugis appressis rotundatis) vel superiora integra supra viridia subdense tuberculato-strigosa subtus distincte pallidiora subsparse strigoso-hispida (pilis venas secundum longioribus) et sparse glanduloso-adspersa triplinervia 2.7–4.7 cm. longa 9–13 mm. lata, petiolis vix marginatis patenti-hispido-pilosis 3–5 mm. longis; ea inflore-

scentiae multo reducta bracteiformia. Capitula 6–9 parva (2 cm. lata) in pedunculis axillaribus et terminalibus 2.3–8.5 cm. longis monocephalis nudis vel bracteatis interdum etiam (vix normaliter) ex axillis inferioribus orientibus insidentia. Discus 6.5 mm. altus 7 mm. crassus maturitate valde convexus. Involucri 2-seriati vix gradati 3.5–5 mm. alti squamae herbaceae praecipue superne hispido-pilosae lanceolatae vel ovatae (tum supra mediam partem abrupte angustatae acuminatae) acutae mucronulatae rarius obtusae. Radii ca. 6 flavi neutrales oblongi emarginulati dorso minute strigillosi 7 mm. longi 3.5 mm. lati. Corollae disci flavae 1.6–1.9 mm. longae (tubo glanduloso basi non ampliato 0.5 mm. longo). Paleae receptaculi valde convexi subhyalino-scariosae in carina sursum et apice viridescentes supra sparse breviter pilosae et ciliatae apice abrupte acutae mucronulatae 3.3 mm. longae. Achaenia oblongo-obovoidea parum incrassata glabra striata albido-nigro-maculosa 2 mm. longa 1 mm. lata. Pappus nullus.— VERA CRUZ: Maltrata, Jan. 1883, *Kerber* 211 (TYPE COLL.: Brit. Mus., Kew). Vernacular name "Acaguale." — Distributed as a *Scleropus* (i. e. *Sclerocarpus*) under an unpublished name attributed to Schultz Bipontinus, which as originally used by Schultz can have had no application to the specimens. The species comes near *G. longifolia* and *G. annua* Rob. & Greenm., but is distinct in its short involucre.

GYMNOLOMIA **hypochlora** Blake, n. sp. Herbacea alta erecta supra ramosa. Caulis tenuis purpurascens striatulus hispidulo-strigillosus. Folia (saltem media et superiora) alterna lanceolata vel oblongo-lanceolata acuminata basi cuneata obscure serrulata (dentibus ca. 11-jugis appressis) ca. 1–1.5 cm. supra basin valde trinervia reticulata supra viridia tuberculato-strigosa aetate lepidota subtus non pallidiora venas et venulas secundum hispidula inter venas plus minusve glandulari-granulosa 8–13.5 cm. longa 1.7–2.7 cm. lata. Petioli hispido-piloso-ciliati 3 mm. longi. Capitula ca. 11 apice caulis laxe cymoso-paniculata 3.5 cm. lata, pedunculis striatis sparse tuberculato-strigillosis nudis vel 1–2-bracteolatis 5–13 cm. longis. Discus 1–(fructu) 1.4 cm. altus 1.4–(fructu) 1.9 cm. crassus. Involucri 5-seriati gradati discum superantis squamae serierum 3 exteriorum herbaceae lanceolatae vel oblongo-lanceolatae acuminatae plus minusve involutae nigrescenti-virides hispido-piloso-ciliatae et intus strigillosae basi induratae apice valde reflexae, eae serierum interiorum oblongae obtusae vel obtusiusculae apice submembranaceo maturitate elongato discum superantes ciliolatae infra paullum induratae plus minusve strigillosae. Radii 12 neutrales flavi oblongi 1.5 cm. longi

4 mm. lati. Corollae disci flavae in basi tubi ampliata etiam basi faucium puberulae 5.5 mm. longae (tubo 1.2 mm.). Paleae supra purpurascentes et strigillosae apice abrupte acuminatae 6.8 mm. longae. Achaenia glabra substriata oblonga 3 mm. longa 1 mm. lata. Pappus nullus.— Jalisco: mountains above Etzatlan, 2 Oct. 1903, *Pringle* 11537 (type coll.: Kew).— Distributed as *G. Ghiesbreghtii* Hemsl., but that has mainly opposite leaves whitened beneath with a dense strigillosity.

Haplocalymma Blake, n. genus *Helianth.-Verbesin., Hymenostephio* Benth. proximum, a quo involucro uniseriato 5-phyllo et foliis alternis imprimis differt.— Capitula heterogama radiata, floribus radii neutris disci hermaphroditis fertilibus. Involucri subcampanulati bracteae 5 uniseriatae oblongo-lanceolatae acuminatae adpressae apice paullum patentes subherbaceae intus subinduratae 3–5-nerviae dense strigosae flores radii subtendentes. Receptaculum parvulum convexiusculum, paleis complicatis flores disci amplectentibus onustum. Corollae radii 5 ligulatae flavae parvae ovales ca. 6-nerviae emarginatae; disci ca. 16 regulares flavae puberulae tubo brevissimo faucibus cylindricis apice 5-fidae. Antherae basi subauriculatae apice appendice deltoideo-ovata flava munitae. Styli rami obtusiusculi hirti non appendiculati. Achaenia radii abortiva; disci parva oblonga a latere subcompressa subsparse villosa. Pappus e squamellis 6 hyalinis latis profunde laceratis duabus in angulis achaenii paullo longioribus compositus.— Herba ramosa tenuis strigillosa, capitula numerosa parvula in paniculis cymosis subdensis 3–5-cephalis ramos dichotome ramosos terminantibus gerens. Folia (saltem media et superiora) alterna ovata grosse sinuato-dentata dentibus acutissime mucronatis.— Species unica *Viguiera microcephala* Greenm.

Haplocalymma **microcephalum** (Greenm.) Blake, n. comb.— *Viguiera microcephala* Greenm.! Proc. Am. Acad. xxxix. 105 (1903).— Morelos: limestone hills near Yautepec, 7 Nov. 1902, *Pringle* 8717 (type coll.: Brit. Mus., Kew); near Cuernavaca, 1905, *Lemmon* 85 (Kew).

The genus *Haplocalymma* (ἁπλοῦς, *simple,* and κάλυμμα, *covering,* from the uniseriate involucre) differs from its near ally *Hymenostephium* Benth. of southern Mexico, Central America and Colombia in its strictly uniseriate 5-leaved involucre (of 2–3 series in *Hymenostephium*) and its alternate leaves, but in pappus characters agrees perfectly with *Hymenostephium angustifolium* Benth. From *Viguiera,* to which its relationship is rather less close, it may be distinguished by the character of its pappus and involucre. The group of *Viguiera* most nearly approaching it, including *V. tenuis* Gray and *V. gracillima* Brandegee, has the phyllaries 2-sub-3-seriate and distinctly more numerous, while the pappus is typical of that of *Viguiera*, consisting of two slender awns sharply differentiated from the four to six shorter squamellae.

VIGUIERA **adenophylla** Blake, n. sp. Herbacea supra ramosa ramis erectis. Caulis purpureo-brunneus plus minusve glanduloso-puberulus sursum appresse pilosulus subflexuosus. Folia alterna late ovata acuminata basi cuneata vel abrupte truncata in petiolum cuneate angustata crenato-dentata (dentibus 17–21-jugis depresso-deltoideis mucronatis) apice acuminato integro trinervia supra subappresse pilosula (pilis basi glandularibus vix tuberculatis) infra non pallidiora glandulosa pilosula 8.5–10.5 cm. longa 4.6–7 cm. lata. Petioli glandulari-pubescentes 1.8–2 cm. longi. Capitula ca. 26 cymoso-paniculata 2.8 cm. lata. Discus 8–13 mm. altus 7–10 mm. crassus. Involucri 6 mm. alti biseriati subgradati squamae lanceolatae vel ovato-lanceolatae acutae subherbaceae basi plus minusve induratae costatae in margine et plus minusve dorsaliter sordide albido-pilosiusculae et glandulosae. Radii 8 flavi ovales emarginati in venis dorsi puberuli 10–12 mm. longi 5.5–6 mm. lati. Corollae disci flavae subappresse pilosulae 6 mm. longae (tubo 1.3 mm.) faucibus campanulato-infundibuliformibus. Paleae oblongae mucronatae acutae margine flavidae apice eroso-denticulatae dorso sordide pilosiusculae parce glandulosae 8–9 mm. longae. Achaenia (immatura) sericea. Aristae 2 paleaceae oblongo-lanceolatae acutae vel obtusae fimbriatae inaequales 2.8–3.5 mm. longae; squamellae 4 longiores liberae oblongae lacerato-fimbriatae ca. 1.2 mm. longae et ca. 4 parvae intermediae laceratae.— SAN LUIS POTOSI: alt. 1830–2440 m., 1878, *Parry & Palmer* 467 (TYPE COLL.: Brit. Mus., Gray Herb., Kew).— Not closely related to any other species.

VIGUIERA **angustifolia** (H. & A.) Blake, n. comb.— *Tithonia pachycephala* H. & A. ! Bot. Beech. Voy. 299 (1840), not DC. (err. iden.). *T. angustifolia* H. & A. ! l. c. 435 (1841). *Viguiera blepharolepis* Gray! Proc. Am. Acad. xix. 5 (1883).— The type of *Tithonia angustifolia* H. & A. (Tepic, *Sinclair*, hb. Kew.) is identical with *Seemann* 1481, from Cerro de Pinal, type collection of *V. blepharolepis*, and not at all the same as *V. buddleiaeformis* (DC.) B. & H. f., although considered by Bentham (B. & H. f. Gen. ii. 375 (1873)) to be identical with the latter species. The only previous *Viguiera angustifolia*, that of Glaziou, Mém. Soc. Bot. France, iii. 412 (1910), is merely a nomen nudum.

VIGUIERA **bicolor** Blake, n. sp. Frutex ramosus verosim. ad 1 m. altus. Ramuli juniores canescenti-strigillosi seniores cano-brunnei subglabrati. Folia subopposita vel superiora alterna rotundata vel rotundato-ovata apice retusa vel rotundata vel obtusa basi truncato-rotundata trinervia supra (siccitate) nigro-viridia aspere strigillosa subtus densissime griseo-strigillosa venosa 1.2–1.8 cm. longa 8–18 mm. lata margine plus minusve revoluta. Petioli canescenti-strigillosi 5–7 mm. longi. Capitula solitaria ramulos terminantia 1.8 cm. lata. Pedunculi canescenti-strigillosi 2.8–4.3 cm. longi. Discus 6–7 mm. altus 11–12.5 mm. crassus. Involucri 3-seriati 3–4 mm. alti gradati squamae acutae densissime strigillosae exteriores oblongae 0.8 mm. latae interiores oblongo-ovatae 2 mm. latae. Radii ca. 12 flavi oblongo-ovales in dorso et tubo dense puberuli 6.5 mm. longi 3 mm. lati. Corollae disci flavae puberulae 3 mm. longae (tubo 0.5 mm.). Paleae subobtusae dorso et apice puberulae 5 mm. longae. Achaenia (immaturissima) subsericea 2.5 mm. longa. Aristae 2 inaequales ad 1.2 mm. longae; squamellae ca. 6–8 acutae inaequales laciniatae multo breviores.— HIDALGO (?): between Rio Grande and Jamaltepec (?), Dec. 1829, *C. Ehrenberg* 1227 (TYPES in the Berlin Herb. and the Gray Herb.).— From its nearest ally, *V. brevifolia* Greenm., the present species differs chiefly in foliar characters. The leaves of *V. brevifolia* are ovate to triangular-ovate, usually acute but sometimes obtuse, and usually strongly canescent above, on petioles 2–3 mm. long; the awns of the pappus about 1 mm. long, equalling the squamellae. Ehrenberg's plant in the Berlin Herbarium was marked as a new species under an unpublished generic name equivalent to *Gymnolomia* by Schultz Bipontinus, who could scarcely have given it more than a very casual inspection to refer it to this genus the salient character of which is the absence of pappus.

VIGUIERA **Brandegei** Blake, n. nom.— *Aspilia hispida* Brandegee! Univ. Calif. Pub. Bot. iv. 94 (1910), not *Viguiera hispida* Baker in Mart. Fl. Bras. vi. pt. 3. 220 (1884).— The pappus of this species, of about 4 oblong irregularly lacerate squamellae with 1 or 2 longer similar aristae, is that of *Viguiera* rather than *Aspilia*. Among Mexican species *V. Brandegei* is most closely related to *V. tenuis* Gray and *V. gracillima* Brandegee. The species is renamed in honor of its original describer, whose publications have for many years been adding largely to our knowledge of the flora of Mexico and Lower California.

HELIANTHUS **leptocaulis** (Wats.) Blake, n. comb.— *Viguiera leptocaulis* Wats. ! Proc. Am. Acad. xxvi. 140 (1891).— Watson's

Viguiera leptocaulis, the type of which (*Pringle* 2247, from near Monterey) was examined at the Gray Herbarium by the writer some months ago, in its involucre, wholly deciduous pappus, and general habit agrees much better with the genus to which it is here referred than with that in which it was originally placed. It seems quite distinct from any described Mexican *Helianthus.*

Phoebanthus Blake, n. genus *Helianth.-Verbesin.* — Capitula heterogama radiata, floribus radii 1-seriatis neutralibus disci hermaphroditis fertilibus. Involucrum hemisphaericum, bracteis 3-seriatis vix gradatis eis duarum serierum exteriorum lineari-lanceolatis acuminatis infra valde induratis costatis supra appendice herbacea laxa multo longiore praeditis sparse tuberculati-hispidis eis seriei intimae latioribus brevioribus solummodo acutis apice obscurissime subherbaceis appressis flores radii subtendentibus. Receptaculum convexum, paleis complicatis flores disci amplectentibus. Corollae radii ligulatae patentes anguste oblongae apice 2–3-denticulatae; disci regulares tubulosae, tubo brevi faucibus elongatis cylindraceis apice breviter 5-fidae. Antherae basi valde sagittatae apice appendice ovali vel oblongo-ovata obtusa munitae, filamentis vel in tubum clausum connatis vel liberis. Styli florum disci rami lineares elongati hirti appendice lineari-oblonga hirta muniti. Achaenia radii trigona abortiva; disci subglabra valde incrassata subquadrangularia (attamen a latere plus minusve compressa) in angulis submarginata. Pappus ex aristis 2 interdum basi profunde laceratis tenuibus vel subpaleaceis persistentibus interdum ad dentes reductis et squamellis numerosis minutis intermediis compositus.— Herbae perennes e radice tuberiformi horizontali submoniliformi. Caulis tenuis simplex 1–3-cephalus foliosus 3–4-pedalis. Folia linearia alterna (paucis inferioribus oppositis exceptis) integra 1-nervia paullum revoluta plus minusve tuberculato-strigosa. Capitula magna flava. Flores radii 10–20 pollicares et ultra; disci numerosi.— Species typica *Helianthella grandiflora* Torr. & Gray.— *Helianthus* L. subgen. *Pseudo-helianthus* Gray, Syn. Fl. i. pt. 2. 285 (1884).

1. PHOEBANTHUS **grandiflorus** (Torr. & Gray) Blake, n. comb.— *Helianthella grandiflora* Torr. & Gray, Fl. N. Am. ii. 333 (1842).

2. PHOEBANTHUS **tenuifolius** (Torr. & Gray) Blake, n. comb.— *Helianthella tenuifolia* Torr. & Gray, Fl. N. Am. ii. 333 (1842).

The two species of *Phoebanthus* (*Φοῖβος, Phoebus,* the sun, and *ἄνθος, flower*) form a small group very similar to *Helianthus* in habital characters, but technically more closely allied to *Helianthella.* From the former *Phoebanthus* differs sufficiently in the numerous short persistent squamellae united into a low denticulate crown, from the latter in habit and achenial characters, as also in range, the species of *Helianthella* being West American and Mexican, of *Phoebanthus* Floridan. The species of *Helianthella*, which after the exclusion of *Enceliopsis* and *Pseudo-helianthus* of the Synoptical Flora are restricted to the subgenus "*Helianthella* proper" of that work, are perennial herbs with rather few lanceolate to oblong-lanceolate usually ample leaves, alternate or opposite, of which the basal are generally much larger, phyllaries for the most part herbaceous or often enlarged and foliaceous, and achenes very strongly flattened (as in *Encelia*), on the margin villous or glabrate, with 2 longer or shorter awns and a corona of thin squamellae of varying length, united below or distinct to the base.

Although the genus *Helianthella* on its first publication (Torr. & Gray, l. c.) was divided into two groups, of which the first (§1, without name) contained only the two species here referred to *Phoebanthus*, while the second had three species (*H. Douglasii*, *H. lanceolata*, and *H. uniflora*) all still retained in *Helianthella*, I have not thought it advisable to consider the *H. grandiflora* group as typical, on the ground of priority of position, and to create a new name for the second group, both because a considerably greater number of name changes would be involved and because the *H. Douglasii* group was considered by Gray himself (see Proc. Am. Acad. xix. 9 (1883); Syn. Fl. i. pt. 2. 284 (1884)) as typical of the genus.

Pionocarpus Blake, n. genus *Helianth.-Verbesin.*— Capitula heterogama radiata, floribus radii 1-seriatis neutralibus disci hermaphroditis fertilibus. Involucrum hemisphaericum, bracteis 2-seriatis (exterioribus paullulo brevioribus) anguste ovato-lanceolatis acuminatis herbaceis subcostatis plus minusve piloso-hispido-ciliatis. Receptaculum convexum, paleis complicatis acuminatis flores disci amplectentibus onustum. Corollae radii ligulatae patentes oblongae; disci regulares, tubo brevissimo faucibus cylindraceis limbo 5-dentato. Antherae basi cordato-sagittatae apice appendice ovata obtusa praeditae. Styli rami lineares hirti appendice lineari-lanceolata longa hirtella praediti. Achaenia radii inania; disci oblonga pubescentia apice truncata valde incrassata paullum a latere compressa immarginata. Pappus persistens ex aristis 2 subaequalibus subtenuibus et squamellis ca. 10 multo minoribus laceratis basi ima unitis interdum una duabusve elongatis compositus.— Herba perennis subscaposa e radice verticali crassa tuberiformi. Caulis parcissime ramosus ca. 4-cephalus. Folia maxima ex parte radicalia lineari-lanceolata

utrimque acuminata longe petiolata subintegra caulina 3–4 (infra mediam partem caulis). Capitula majuscula longe pedunculata, pedunculis basi unibracteatis. Flores radii ca. 10 flavi, disci numerosi flavi.— Species unica *Helianthella madrensis* Wats.

PIONOCARPUS **madrensis** (Wats.) Blake, n. comb.— *Helianthella madrensis* Wats.! Proc. Am. Acad. xxiii. 278 (1888).— CHIHUAHUA: pine plains, base of the Sierra Madre, 19 Sept. 1887, *Pringle* 1302 (TYPE COLL.: Kew).

The genus *Pionocarpus* (πιὼν, fat, and καρπὸς, fruit) is distinguished from *Helianthella* chiefly by characters of the achene and style. The achenes of *Pionocarpus* are strongly thickened, unmargined, and broadly truncate at apex, and the style-branches bear a long hirtellous appendage. In *Helianthella,* on the contrary, the achenes are very flatly compressed, as in *Encelia,* are more or less distinctly white-margined, and at the true apex are much narrower than the body, the more or less united squamellae being borne in a notch at the summit of the achene between the two awns. From *Phoebanthus,* to which its relationship is rather closer, *Pionocarpus* is separated by its habit and by the much more conspicuous squamellae.

PERYMENIUM **blepharolepis** Blake, n. sp. Frutex ramosus. Caulis densissime strigillosus cortice cano-brunneo tectus aetate glabratus; rami tenues subquadrangulares strigillosi fusco-brunnei. Folia opposita ovata subacuminata basi cuneata vel cuneato-rotundata trinervia appresse serrata (dentibus 7–8-jugis) supra viridia strigillosa pilis basi tuberculatis subtus pallidiora non canescentia strigosa et strigillosa plus minusve glanduloso-adspersa 2.5–3.8 cm. longa 10–17.5 mm. lata. Petioli tuberculato-strigosi 2 mm. longi. Capitula 1.5–2 cm. lata in apicibus ramorum 5–7 sublaxe cymoso-paniculata in pedunculis axillaribus et terminalibus strigillosis 1.2–4.5 cm. longis. Discus 7–9.5 mm. altus 6–8 mm. crassus. Involucri 3–sub-4-seriati gradati 7 mm. alti squamae exteriores ovatae interiores ovato-lanceolatae plus minusve strigillosae et ciliatae infra subinduratae pallidae ca. 5-nerviae apice laxo angustato subacuto herbaceo. Radii 8 fertiles aurei oblongo-ovales bidenticulati in venis dorso plus minusve puberuli 7–5 mm. longi 3 mm. lati. Corollae disci aureae in dentibus hirtellae 4.8–5 mm. longae (tubo 1.4–1.5 mm.). Paleae obtusae supra strigillosae in margine et carina spinuloso-ciliolatae 5.8–7 mm. longae. Achaenia juventate plus minusve piloso-hispida maturitatem vergentia sparse hispidula. Pappi aristae ca. 12 caducae ad 1.3 mm. longae subaequales (2 longioribus 3 mm. longis exceptis).— PUEBLA: Coxcatlan, alt. 2135–2440 m., Sept. 1909, *Purpus* 4143

(TYPE COLL.: British Museum).— Most nearly related among described species to *P. verbesinoides* DC., but distinct in its longer looser phyllaries, fewer longer-peduncled heads, and in its distinctly paler leaves, which are much less reticulate beneath.

PERYMENIUM **hypoleucum** Blake, n. sp. Frutex ramosus. Caulis strigillosus cortice griseo-brunneo tectus aetate subglabratus; rami sub-6-angulares subdense strigillosi purpureo-brunnei. Folia opposita (paucis superioribus interdum alternis exceptis) ovata vel elliptico-ovata obtusa vel acuta basi cuneato-rotundata serrata (dentibus 5–7-jugis late triangularibus subpatentibus vel appressis) pinnatinervia (venis supra impressis subtus reticulatis majoribus 3–4-jugis imis validioribus) supra viridia dense strigosa pilis basi tuberculatis subtus cum pilis densissimis appressis brevibus canescentia et subaspera 2–3 cm. longa 1.1–1.9 cm. lata. Petioli strigosi immarginati 1.5–2 mm. longi. Capitula 1 cm. lata ad apices ramorum 4–10 dense cymoso-paniculata in pedunculis dense strigosis 3–8 mm. longis disposita. Discus 6–8 mm. altus 5–7 mm. crassus. Involucri 4-seriati gradati 4 mm. alti squamae solummodo apice herbaceae infra induratae pallidae dense strigillosae obtusae vel rotundatae extimae elliptico-ovatae interiores deltoideo-ovatae vel late ovales intimae 3-nerviae. Radii fertiles ad 7 ovales aurei 2–3-denticulati in venis dorso hirtelli 3.5 mm. longi 2 mm. lati. Corollae disci flavae in dentibus et interdum tubo hirtellae 3.5 mm. longae (tubo 1 mm.). Paleae in carina infra glandulosae supra subspinulosae in margine denticulato-spinulosae apice abrupte acutae 3.7 mm. longae. Achaenia (immaturissima) in angulis hispidula. Pappi aristae ca. 8 caducae spinulosae subaequales (una duabusve duplo longioribus exceptis).— PUEBLA: vicinity of San Luis Tultitlanapa, near Oaxaca, 9 July 1908, *Purpus* 3087 (TYPE COLL.: British Museum).— Distributed as *P. rude* Rob. & Greenm., from which it is very distinct. More closely related to *P. croceum* Rob. & Greenm. and *P. angustifolium* Brandegee, but quite distinct from both.

PERYMENIUM **leptopodum** Blake, n. sp. Frutex ramosus. Caulis tenuis quadrangularis minute strigillosus cortice brunneo vel purpureo-brunneo tectus. Folia opposita ovato-lanceolata acuminata basi cuneata trinervia appresse serrata (dentibus 8–10-jugis) supra obscure viridia minute strigilloso-scabra subtus non pallidiora glanduloso-adspersa venas et venulas secundum strigillosa 4.6–6.3 cm. longa 1.5–2.3 cm. lata. Petioli vix marginati tenues 9–16 mm. longi. Capitula 1.6 cm. lata in apicibus ramorum et ramulorum ternatim vel quinatim cymoso-paniculata. Pedicelli 5–19 mm. longi strigillosi.

Discus 5–7 mm. altus 4–6 mm. crassus. Involucri 3-seriati 4 mm. alti paullum gradati squamae extimae breviores late ovatae obtusae strigillosae vix ciliolatae basi coriaceo-induratae apice herbaceae mediae et intimae late oblongae subobtusae minus induratae ciliolatae et strigillosae apice subherbaceae. Radii 8 fertiles flavi ovales bidenticulati dorso glanduloso-puberuli 4.5–5.8 mm. longi 2.8 mm. lati. Corollae disci flavae in tubo puberulae 3–4.2 mm. longae (tubo 0.6–1.6 mm.), faucibus valde ampliatis. Paleae subacutae scariosae flavae in carina hispidulae margine superne lacerato-dentatae 4.2–4.6 mm. longae. Achaenia brunneo-nigrescentia transverse plus minusve rugulosa incrassata submarginata apice rotundata sparse strigillosa 1.8 mm. longa 1 mm. lata. Pappus fragilissimus ex aristis 2 tenuibus spinulosis 2.5 mm. longis et aristulis ca. 12 inaequalibus (longioribus ad 1 mm. longis) compositus.— GUATEMALA: shrubby growth, alt. 1311 m., near Coban, Jan. 1879, *von Tuerckheim* 339 (TYPE COLL.: British Museum, Kew).— This number is referred in Robinson & Greenman's revision (Proc. Am. Acad. xxxiv. 526 (1899)) to *P. gymnolomioides* (Less.) DC., originally described from Vera Cruz, but differs in several important features from the description there given of that species, which is said to have entire leaves, 3–5-headed corymbs, spreading-pubescent pedicels, and much shorter petioles (3 mm. long).

CHRYSACTINIA **acerosa** Blake, n. sp. Frutex ramosus pedalis. Caulis tenuis brunneo-griseus minute hirtellus aetate glabratus opposite ramosus. Folia opposita vel superiora alterna filiformi-subulata 2–4-glanduloso-punctata semiteretia supra complanata apice subulato-mucronata glabra laete viridia 6–8 mm. longa 0.25 mm. lata saepius ramulos brevissimos foliosissimos subtendentia. Pedunculi ramos terminantes monocephali glandulari-hirtelli lineari-subulato-bracteolati striati ad 1 cm. longi. Capitula (immatura) hemisphaerica 5–6 mm. alta. Involucri uniseriati 3.5 mm. alti squamae aequales 8 anguste oblongae (0.8–1.3 mm. latae) membranaceo-chartaceae viridescentes obtusae subcarinatae in margine scarioso sparse eroso-ciliatae infra apicem glandula anguste oblonga brunnea praeditae. Radii (immaturi) aurei oblongi fertiles. Corollae disci (immaturae) aureae in dentibus minute hirtellae 4 mm. longae. Achaenia (immaturissima) pubescentia. Aristae pappi ca. 24 tenues spinulosae subaequales ad 3.5 mm. longae.— SAN LUIS POTOSI: Sierra de Guascama, Minas de San Rafael, June 1911, *Purpus* 5136 (TYPE COLL.: British Museum, Gray Herb., U. S. Nat. Herb.).— Distributed as a narrow-leaved form of *C. mexicana* Gray, but seemingly quite distinct from that species in foliar and involucral characters.

The four species of *Chrysactinia* now known may be conveniently divided into two sections, habitally well marked but without differential characters of technical importance.

I. CHRYSACTINIA Gray (Pl. Fendl. 93 (1849)) sect. **Euchrysactinia** Blake, n. sect. Folia subulata integerrima. Corollae radii discique aureae.— Type *C. mexicana* Gray.

1. C. MEXICANA Gray, l. c. (1849).— Leaves subulate, flattened above, hirtellous on the margin, mostly alternate, 4.5–12 mm. long, 0.7–1.2 mm. wide, with rather numerous glands. Phyllaries apparently uniformly 12 in number, 4–5 mm. long.— *Pectis taxifolia* Greene! Leafl. i. 148 (1905): see Greenm. Field Columb. Mus. Bot. ii. 274 (1907).— Western Texas and New Mexico to Puebla.

2. C. ACEROSA Blake.— Leaves filiform-subulate, glabrous, mostly opposite, bearing 2–4 glands, 6–8 mm. long, 0.25 mm. wide. Phyllaries 8 in number, 3.5 mm. long.— San Luis Potosi.

II. CHRYSACTINIA sect. **Phylloloba** Blake, n. sect. Folia 3–17-pinnatilobata. Corollae radii albidae et aurantiaco-suffultae vel aureae; corollae disci aurantiacae vel aureae.— Type *C. pinnata* Wats.

3. C. PINNATA Wats. ! Proc. Am. Acad. xxv. 154 (1890).— Leaves opposite, oblong, pinnatilobed almost to the midrib with 9–17 opposite oblique oblong to (uppermost) deltoid mucronate acute lobes, sparsely gland-dotted, 2.5–4.9 cm. long, 1.2–1.9 cm. wide, the lowest pair of lobes reduced and stipule-like. Rays 8, whitish, orange-tinged outside; disk orange.— Nuevo Leon: *Pringle* 2524 (TYPE).— Described by Watson as herbaceous, but apparently frutescent like the other species of the genus.

4. C. TRUNCATA Wats. ! l. c. (1890).— Leaves opposite or the upper alternate, ovate to ovate-oblong in outline, pinnatilobed nearly to the midrib with 3–7 mostly alternate lobes, the lobes entire or with 1–few spinulose teeth, truncate and glandular-mucronate at apex (or the terminal sometimes acute), 1.5–2.4 cm. long, 8–12 mm. wide.— Nuevo Leon: *Pringle* 2601 (TYPE).— The rays are described by Watson as bright yellow.

COREOPSIS **basalis** (Dietr.) Blake, n. comb.— *Calliopsis basalis* Dietr. in Otto & Dietr. Allgem. Gartenzeit. iii. 329 (17 Oct. 1835). *Calliopsis Drummondii* D. Don ! in Sweet, Brit. Fl. Gard. ser. 2. iv. t. 315 (1838). *Coreopsis Drummondii* (D. Don) Torr. & Gray, Fl. N. Am. ii. 345 (1842).— The long and detailed description by Otto & Dietrich of their *Calliopsis basalis* shows it to be identical with the plant soon afterward described and figured by David Don as *Calliopsis Drummondii,* which has generally passed in American literature as *Coreopsis Drummondii.* The seed from which the plant was grown at the Berlin Garden was stated by Otto & Dietrich to have come from Missouri, but as it was included in a large lot of seeds received at second hand from an unknown collector there was obvious chance of error in regard to its origin, and there can be no doubt that it really came from Texas, to which the species is apparently confined. The probable identity of *Calliopsis basalis* and *C. Drummondii* was first brought to my attention through a manuscript note on a sheet in the British Museum by Mr. S. LeM. Moore, to whom I am indebted for permission to publish this note.

The form with linear or linear-oblong leaf-lobes described by Gray (Syn. Fl. i. pt. 2. 291 (1884)) as *Coreopsis Drummondii* var. *Wrightii* becomes C. BASALIS (Dietr.) Blake var. **Wrightii** (Gray) Blake, n. comb.